

(Substitute abstract)

ABSTRACT

A femtosecond or picosecond laser beam is split into first and second laser beams which are irradiated onto an optical fiber core at an interference angle of 90 degrees to generate a change in the refractive indices of the optical fiber core, depending on the light intensity distribution of the interference fringes, such that a grating is written in the core.

ABSTRACT

A femtosecond laser radiation or a picosecond laser beam radiation output from light source 6 is split into a first beam and second laser beams which are reflected to an angle of 90 degrees by a beam splitter 7 and a straightly advancing second beam cut out by the beam splitter 7. The first beam is reflected at an angle of 90 degrees by a second reflecting mirror 9, reflected again at an angle of 90 degrees by a fourth reflecting mirror 11, and is collimated by a second lens 15 to be irradiated onto an optical fiber core wire 13 to be written. The second beam is reflected at an angle of 90 degrees by a first reflection mirror 8, reflected again at an angle of 90 degrees by a second reflection mirror 10, and is collimated by a first lens 14 to be irradiated onto the optical fiber core wire 13 to be written. The femtosecond laser output from the light source 6 is split into two by the beam splitter 7, which interfere with each other in the vicinity of the core of the optical fiber core wire 13 to generate a change in the refractive indices of the glass depending on the light intensity distribution of the interference fringes, such that the gratings are written in the core 1.

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